Alerts, Notices, and Case Reports

Acute Histoplasmosis Acquired in Mexico

CARL M. KIRSCH, MD
WILLIAM A. JENSEN, MD
FRANK T. KAGAWA, MD
ANTHONY C. CAMPAGNA, MD
San Jose, California

Histoplasma capsulatum is a fungus that is endemic in the Ohio and Mississippi river valleys of the central United States.[1,2] Patients from these areas with suggestive clinical signs and symptoms are usually evaluated for possible histoplasmosis. Many American physicians are unaware that *H capsulatum* is endemic in 31 of the continental 48 United States[1,3] and in many other parts of the world.[3,4] Most comprehensive American epidemiologic reviews fail to emphasize that Mexico is an endemic area. We report a case of severe acute histoplasma pneumonia and fungemia in a patient who contracted the disease during a visit to Mexico.

Report of a Case

The patient, a 30-year-old man, was seen in the emergency department because of severe dyspnea. He had been in good health until three weeks before admission, when bifrontal headache, cough productive of green sputum, dyspnea, and fever to 38.9°C (102°F) developed while he was in Mexico. He used acetaminophen without relief and subsequently went to a physician who noted right lung crackles. The patient was given cefuroxime for eight days, but obtained no relief. He had no history of exposure to animals or to sick people. He was a nonsmoker, never used illicit drugs, and had no blood transfusions, homosexual contacts, or contact with prostitutes. He was a day laborer in the domestic construction trade and had immigrated to this country from Mexico in 1985. He had been in Mexico City and the states of Hidalgo and Colima for three months but returned home to San Jose, California, 1½ weeks before admission. On his return home, the patient drove from Mexico City and entered the United States through Nogales, Arizona.

The patient was diaphoretic, in moderate distress due to dyspnea, and was unable to talk in full sentences. He was coughing up copious amounts of blood-tinged purulent sputum. His blood pressure was 110/67 mm of mercury, his pulse rate was 110 beats per minute, the respiratory rate was 28 breaths per minute, and his temperature initially was 37.2°C and increased to 40°C on the first hospital day. The head and neck were unremarkable except for herpes labialis. There was no peripheral lymphadenopathy, the skin was normal, and the results of a cardiovascular examination were unremarkable. There were diffuse inspiratory crackles over all lung fields without wheezes. The abdomen and extremities were normal, and he had no hepatosplenomegaly.

A chest roentgenogram showed a diffuse interstitial nodular infiltrate in a peribronchial distribution bilaterally without adenopathy, pleural fluid, or cardiomegaly (Figure 1). His leukocyte count was 8.0×10^9 cells per liter (8,000 cells per mm^3) with 0.80 (80%) neutrophils, 0.07 (7%) band forms, 0.11 (11%) lymphocytes, and 0.02 (2%) monocytes; the hematocrit was 0.42 (42%). A specimen of radial arterial blood taken with the patient breathing room air showed a pH of 7.50, a Pco_2 of 31 mm of mercury, and a Po_2 of 42 mm of mercury. A computed tomographic scan of the head done without a contrast medium was normal, and a lumbar puncture revealed no leukocytes, 6 erythrocytes $\times 10^6$ per liter (6 per mm^3), a total protein level of 0.15 grams per liter (15 mg per dl), and a glucose level of 3.0 mmol per liter (54 mg per dl).

It was initially thought that the patient had a pneumonia most suggestive of infection with *Coccidioides immitis*, but tuberculosis was strongly considered. A regimen of broad-spectrum antibiotics was started consisting of intravenous erythromycin, amphotericin B, and methylprednisolone sodium succinate and oral isoniazid, rifampin, pyrazinamide, and ethambutol hydrochloride. Supplemental oxygen was administered with a 100% nonrebreather face mask plus nasal cannula at 6 liters per minute. The patient improved remarkably by the second hospital day and required only nasal oxygen at 2 liters per minute on the third day. Oral ketoconazole was substituted for intravenous amphotericin B on the sixth hospital day, and the patient was discharged on the ninth day.

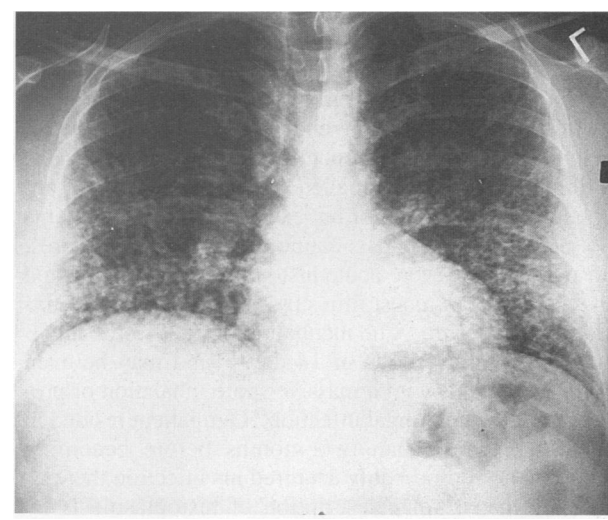

Figure 1.—The chest film shows interstitial nodular infiltrates of both lung fields.

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From the Division of Respiratory and Critical Care Medicine, Santa Clara Valley Medical Center, San Jose, California.

Reprint requests to Carl M. Kirsch, MD, Division of Respiratory and Critical Care Medicine, Santa Clara Valley Medical Center, 751 S Bascom Ave, San Jose, CA 95128.

Serologic tests were negative for the human immunodeficiency virus type 1 and *C immitis* antibodies, and *Cryptococcus neoformans* antigen was not detected in the blood. All sputum specimens were negative for fungal organisms (using potassium hydroxide) and acid-fast bacteria. A fungus was identified in cultures of one blood and two sputum specimens on the 12th day, which subsequently proved to be *H capsulatum*. All cultures for acid-fast organisms have remained sterile. A second chest film done six weeks after admission showed pronounced resolution of the noncalcified infiltrates.

The patient has been treated with oral ketoconazole, 400 mg a day, for more than three months without problems. He continues to feel well, has gained 7.25 kg (16 lb), and has returned to work. The patient has consistently denied any exposure to bats, birds, or bird guano, spelunking, or travel to areas in the United States known to be endemic for *H capsulatum*.

Discussion

Histoplasma capsulatum is a dimorphic fungus that inhabits temperate areas worldwide and is endemic in the Americas.[1,3,4] Its geographic distribution in the Americas is best documented in the Mississippi and Ohio river valleys of the central United States[1,5] and Central and South America.[2-5] Human infection with *H capsulatum* is caused by inhaling infectious spores released from fungus growing in soil.[1,3] Bird and bat guano seem to facilitate the formation and growth of *H capsulatum* spores.[1,3] The clinical presentation of histoplasmosis may be similar to that of tuberculosis,[4] but *H capsulatum* is not known to be transmissible from one infected person to another.[1,3,5] Therefore, as noted in 1956, "the factor of primary significance in histoplasmosis is geography: where a man lives, rather than with whom he lives, is of major importance in determining his chances of becoming infected with the fungus."[4(p247)] The occurrence of histoplasmosis in nonendemic areas is thought to be due to the acquisition of disease in patients who have migrated from endemic areas after acquiring a primary infection,[6] possibly due to a reactivation of previous infection in patients from endemic areas who have decreased immune function[7] or to primary infection acquired from contact with "microfoci" or "point sources" outside the endemic area.[2] Microfoci are locations in endemic or nonendemic areas such as caves, buildings, bird roosts, chicken coops, and trees that are contaminated with bird or bat excrement.[1] Some patients with acute histoplasmosis cannot recall such exposures. Our patient had severe acute histoplasma pneumonia and fungemia,[8] and his chest film suggests a massive acute inhalational exposure.[1] The incubation period is probably 3 to 30 days with a mode of 14 days[1,9] and may be even shorter in patients with a massive spore inhalation or previous histoplasma fungal infection.[1] Our patient resided in Mexico for more than two months before becoming symptomatic and probably acquired his infection there.

Since the original description of histoplasmosis by Samuel Darling in Panama in 1906,[10] most epidemiologic reviews indicate that the disease is well described in Central and South America, but only a few reviews even superficially include Mexico.[2-4] The prevalence of *H capsulatum* and the incidence of histoplasmosis in Mexico are not well documented in the English-language medical literature and consequently are not widely appreciated by American physicians. Many epidemics of histoplasmosis have been described in Mexico since the first case description in 1943,[11] and these epidemics have not been isolated to any particular geographic area of the country.[12,13] In fact, histoplasmosis has been described in 13 of 32 Mexican states as of 1963[12] and 15 states as of 1964,[14] and its geographic distribution is not limited by climate or latitude.[12,14] Most of these outbreaks (96% of cases) seem to have been associated with bat-dung contact occasioned by harvesting for fertilizer or cleaning during restoration.[12,14] There were 12 epidemics and 6 isolated cases of histoplasmosis involving 292 patients described from 1959 to 1964.[14] One of the best documented of these epidemics occurred in 1960 among 65 workers who were hired to clean a 60-year-old mile-long tunnel in the state of Colima.[15] Histoplasmosis occurred only in the 50 of 59 workers who actually worked inside the tunnel. The incubation period was seven to ten days, 6 of the 50 patients had severe pneumonia, and 3 of the 6 patients died. The massive inhalational exposure produced a diffuse micronodular pattern on chest film in most patients, and *H capsulatum* grew in the blood cultures of 2 of the patients who died. Our patient visited the state of Colima during his return to Mexico, where he did some domestic renovation and home construction. His illness was similar to that of the most severely infected Colima workers. The French Canadian medical literature contains a similar report of three Canadians who visited Mexico and contracted histoplasmosis while exploring caves there.[16] Our patient, as well as the French Canadians, had a clinical presentation similar to that of tuberculosis. The Mexican medical literature indicates that histoplasmosis and tuberculosis have similar clinical presentations[11] and that evaluations that fail to find tuberculosis in such patients should prompt an investigation for histoplasmosis.[17]

We conclude that *H capsulatum* and histoplasmosis exist in Mexico and are well documented in the Mexican medical literature and in French Canadian case reports. American physicians do not commonly read Mexican or French Canadian reports and consequently are not aware of its prevalance there. Patients who have visited Mexico and who appear to have an illness suggestive of a fungal pneumonia should be evaluated for possible histoplasmosis.

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Factitious Simulation of Systemic Lupus Erythematosus

JONATHAN D. APFELBAUM
H. JAMES WILLIAMS, MD
Salt Lake City, Utah

SELF-INFLICTED INJURIES AND DISEASES have been recognized since Biblical times. In the Middle Ages, hysterics were known to place leeches in their mouths to simulate hemoptysis and to abrade their skin to reproduce skin conditions.[1] Gavin in 1843 distinguished between malingering—feigning illness for financial compensation—and simulating illness for inexplicable motives.[2] In 1951 Asher identified the latter syndrome, naming it after the 18th century German nobleman with a predilection towards embellishment: Baron Karl Friederich Hieronymus von Münchausen.[3]

Munchausen syndrome is a variant of chronic factitious illness in which a patient's plausible presentation (often emergent and dramatic) of factitious symptoms and disease is associated with many hospital admissions.[4] Although this condition is thought to be rare, its presentation is not uncommon as persons with the syndrome drift from hospital to hospital, often with more than one admission at each. Invasive diagnostic studies and surgical procedures are common in these patients. Since the original description of this syndrome, many reports have documented the spectrum of disorders that have been simulated. We have not, however, seen any reports of a man with simulated systemic lupus erythematosus.

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From the Department of Internal Medicine, Division of Rheumatology, University of Utah School of Medicine, Salt Lake City.

Reprint requests to Jonathan D. Apfelbaum, c/o Office of the Dean, University of Utah School of Medicine, 50 N Medical Dr, Salt Lake City, UT 84132.

Report of a Case

The patient, a 29-year-old man with a history of systemic lupus erythematosus (SLE), was seen at the emergency department of the University of Utah Medical Center (Salt Lake City) because for eight days he had had right flank pain radiating to his right groin, nausea, vomiting, and gross hematuria. He had been seen at another facility where he was diagnosed with a kidney stone and treated with narcotics and intravenous hydration. Although he said he was "violently" allergic to intravenous contrast dye, the patient brought with him an intravenous pyelogram. He was seen in the urology clinic where his pyelogram was interpreted as normal without any signs of renal stones. He was then admitted for the evaluation of possible lupus nephritis.

The patient said he had been diagnosed with lupus five years ago at an unrecalled hospital. He said his symptoms at that time were "bursitic arthralgias," myalgias, low leukocyte count, photosensitivity (described as a rash on his arms and legs after sun exposure longer than 20 minutes), photophobia, pleuritic chest pain, a positive antinuclear antibody test, and a malar rash. In addition, the patient described "blackouts," which he presumed to be some type of seizure, that occurred from once a week to once a month, were preceded by a feeling of dizziness, lasted for several seconds, and were followed by disorientation for several hours. He never lost consciousness and did not have any incontinence during these episodes; none of them had ever been witnessed. He said he had a previous electroencephalogram at an unknown facility with unknown results. The patient also gave a history of a positive human immunodeficiency virus (HIV) test five years before, previous hepatitis, and previous nephrolithiasis.

On examination, the patient's vital signs were stable and he was afebrile. He appeared to be resting comfortably and conversed easily, often requesting medication to relieve the pain in his back. Any palpation of the patient was met with groans and exclamations of distress. His discomfort seemed to be greatest at the right costovertebral angle with considerable tenderness throughout his back and extremities. He had no lymphadenopathy or rashes. His cardiovascular system was normal, and his lungs were clear to auscultation. The chest pain was reproducible with sternal pressure. His abdomen was tender to palpation in the right upper and lower quadrants. The results of his neurologic examination were within normal limits without any focal signs, and extremities were remarkable only for several areas of hypopigmentation on his upper extremities and multiple punctate lesions on the pad of his left index finger.

Laboratory data showed a leukocyte count elevated at 10.7 cells $\times 10^9$ per liter (10,700 cells per mm^3) with a normal differential cell count, a hematocrit of 0.41 (41%), a platelet count of 211 $\times 10^9$ per liter (211,000 per mm^3), normal electrolytes, normal liver function test results, and a sedimentation rate of 2 mm per hour. On analysis the urine was "cloudy" with a specific gravity of 1.020, a pH of 7.0, without protein, nitrate, or ketones, and without leukocytes or casts. There were 10 to 20 erythrocytes vis-